

## Report of the Workshop on Barley Genetic Linkage Groups, Barley Genome and Collections at the 11th International Barley Genetics Symposium in Hangzhou, China, April 15th, 2012.

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### **Agenda:**

#### **The following topics were brought up for discussion during the workshop:**

1. To-days coordination system for the seven chromosomes, their linkage groups and collections, its function and future continuation.
2. The whole genome coordination as much research has been done on this topic. For the time being would it be possible to have only one coordinator for the whole genome?
3. Is somebody available to do this enormous task?
4. Coordination for integration of molecular and morphological marker genes.
5. Barley Genetics Newsletter (BGN§): Its function to-day and for the future.
6. The International Database for Barley Genes and Barley Genetic Stocks.
7. Maintenance of different collections and barley genetic stocks.
8. Some relevant Nomenclature and Symbolization problems of barley genes. A few paragraphs need to be revised more adapted for molecular biological researchers.
9. International Overall Chairman for the barley linkage groups and collections.
10. Other relevant topics.

The workshop took place Sunday night April 15th, 2012 in the 'First World Hotel', Hangzhou, China and was participated by about 50-60 delegates. The following topics were discussed very intensively.

1.-4. Udda Lundqvist demonstrated by some power point presentations the coordinator system of to-day and how it is working, if we should make it more modern and suggested that may be one person should collect all different parts and combine all the results during one year in one and the same report.

In the continuation lively discussions followed, it was mentioned that the development of genetic markers is emerging so fast that the coordinators of the seven chromosomes cannot

summarize the enormous results any more. We are also urgently waiting for the barley genome sequence to be publically available. Voices were also heard claiming that the genome sequence for the first time will give us the opportunity to obtain a map that will not change over time, get more detailed, and that there is no point to create other maps than that one that is based on the genome sequence. Breeders wished that there should be an easy way to find markers associated to different traits, that they should be collected and presented in an understandable way for the breeding programs. With the barley genome accessibility, it will be easy to find the exact location of each marker.

Udda Lundqvist presented in the power point demonstration the different coordinators for each chromosome and barley collections, and showed examples of the mutant groups they have to deal with. According to the discussions described above, it was concluded that the concept of the coordinators of the seven chromosomes is not needed any more. But the coordinators of the collections and barley stocks are more than ever requested for collecting data. The plant breeding people requested an extension to have coordinators for agronomic trait collections. The workshop agreed to find people for different important useful agronomic traits.

The different coordinators for the collections are summarized in the table below.

**Table 1.**

Barley Genetic Stock Center	Harold Bockelman, USA
Trisomics and aneuploids	Harold Bockelman, USA
Translocations and BBT	Andreas Houben, Germany
Desynaptic Genes	Andreas Houben, Germany
Autotetraploids	Wolfgang Friedt, Germany
Disease and pest resistant genes	Ordon Frank, Germany
Eceriferum genes	Udda Lundqvist, Sweden
Chloroplast genes	Mats Hansson, Denmark
Spike morphology genes	Michele Stanca and Valeria Terzi, Italy; Udda Lundqvist, Sweden
Semidwarf genes	Jerry Franckowiak, Australia
Early maturity genes	Udda Lundqvist, Sweden
Barley-wheat genetic stocks	A.K.M.R. Islam, Australia

5. The future of Barley Genetics Newsletter (BGN) was discussed intensively. Presently the Newsletter contains mostly Coordinators reports and has an important function to update descriptions of barley genetic stocks with the origin of barley mutants, their chromosome locations and cited literature references. Very few scientific articles are published during the last years.

The workshop suggested that Barley Genetics Newsletter is the best forum and the most important part for barley genetic stocks descriptions, and it was concluded that the Newsletter is most helpful and useful if it focuses on updated descriptions and lists every year. The role of the coordinators of the collections is more important than ever to update the barley genetic stocks with information concerning genetic information of the genes containing the mutations. Another request was to add descriptions of loci which are not yet included. Presently BGN volume 26 contains the majority of the stock descriptions and updates occur regularly in later

volumes. An updated complete version of a complete barley genetic stock list is planned, one single on-line version is desirable and would be quite easy to update continuously. The Barley Genetics Newsletter is also open for more than ever to publish research reports that are not ready for publication as papers in prominent journals.

6. Udda Lundqvist informed about the International Database for Barley Genes and Barley Genetic Stocks (AceDB = Untamo database). Many barley researchers are using it frequently, but unhappily the format is not up-to-date and no expertise is available to update it continuously. A decision is made at the end of 2011 by Nordgen (Sweden) to transfer the database to its data system with a modern format during 2012.

7. Regarding the maintenance of Barley Genetic Stocks a special workshop will take place during this week of the Symposium where an establishment of a Barley Genetic Resource Committee by the International Barley Genetics Symposium (IBGS) will be recommended. See further the report of this workshop in this volume of BGN.

8. Jerry Franckowiak, Australia, presented an overview of the development of the gene symbolization system for barley, recommended barley genetic symbols and showed the usage of different symbols used to-day. After some discussions the workshop recommended that Jerry Franckowiak (Australia) and Mats Hansson (Denmark) update and revise some nomenclature rules for adaption for modern techniques.

9. The workshop recommended that to-days Overall Chairman (Udda Lundqvist) for the barley linkage groups and collections should continue. It was also recommended that Udda Lundqvist continues as overall coordinator of the barley genetic stocks descriptions for Barley Genetics Newsletter which she accepted.

10. No additional relevant topics were brought up for discussion.